

WHAT IS CLAIMED IS:

1. An ink jet printer comprising:

a print head having a plurality of ink jet nozzles arranged in plural columns;

5 an ink cartridge including an ink accommodation chamber having a deformable wall and an air chamber for exerting via the wall air pressure on ink accommodated in the ink accommodation chamber;

an ink supply tube connecting the ink cartridge to the  
10 print head;

an air pump for producing pressurized air for changing a state of ink that is located at a tip portion of each of the ink jet nozzles;

an air supply tube for guiding the pressurized air to  
15 the air chamber of the ink cartridge; and

a maintenance unit including a cap member for covering the print head,

wherein the maintenance unit opens the cap member in a state that the pressurized air is supplied to the air  
20 chamber of the ink cartridge.

2. The ink jet printer according to claim 1, wherein the maintenance unit further comprises a wiper member for wiping over the print head, and the air pump supplies the pressurized air to the air chamber of the ink cartridge  
25 since a prescribed time before the cap member opens till

the wiper member completes wiping.

3. The ink jet printer according to claim 2, wherein the ink cartridge comprises a plurality of ink cartridges that accommodate inks of plural colors, respectively, and  
5 are connected in parallel to the air supply tube in a horizontal plane.

4. The ink jet printer according to claim 2, wherein an orifice for exhausting part of the pressurized air is provided in the vicinity of an air-pump-side end of the air  
10 supply tube.

5. The ink jet printer according to claim 2, wherein an orifice for exhausting part of the pressurized air is provided in the vicinity of an opposite end of the air supply tube to the air pump.

15 6. The ink jet printer according to claim 4, wherein the ink cartridges comprises a plurality of ink cartridges arranged in such a manner that an ink cartridge with a higher ink viscosity is located upstream of a flow of the pressurized air from the air pump to the orifice.

20 7. The ink jet printer according to claim 5, wherein the inner diameter of the air supply tube decreases as the position goes from the air pump to the orifice.

8. The ink jet printer according to claim 2, wherein the print head is located at a position higher than the ink  
25 cartridge by a prescribed length, whereby a negative

pressure acts on each of the ink jet nozzles of the print head and a concave ink meniscus is formed at a tip of each of the ink jet nozzles.

9. An ink jet printer comprising:

5 a print head having a plurality of ink jet nozzles arranged in plural columns;

an ink cartridge including an ink accommodation chamber having a deformable wall and an air chamber adjoining to the ink accommodation chamber via the wall,  
10 the ink accommodation chamber accommodating ink to be supplied to the print head;

an ink supply tube connecting the ink cartridge to the print head;

an air pump for producing pressurized air for changing  
15 a state of ink that is located at a tip portion of each of the ink jet nozzles;

an air supply tube for guiding the pressurized air produced by the air pump to the air chamber of the ink cartridge; and

20 a maintenance unit including a cap member for covering the print head in conducting a maintenance of the print head,

wherein the maintenance unit opens the cap member in a state that the pressurized air is supplied to the air  
25 chamber of the ink cartridge.

10. An ink jet printer comprising:  
a print head having a plurality of ink jet nozzles  
arranged in plural columns;  
an ink cartridge accommodating ink to be supplied to  
5 the print head;  
an ink supply tube connecting the ink cartridge to the  
print head;  
means for covering the print head so as to shut  
communication of ink that is located at a tip portion of  
10 each of the ink jet nozzles with ambient air;  
means for producing pressurized air to be supplied to  
the ink cartridge for changing a state of the ink that is  
located at a tip portion of each of the ink jet nozzles;  
and  
15 means for opening the print head so as to communicate  
the ink that is located at a tip portion of each of the ink  
jet nozzles with the ambient air in a state that the  
pressurized air is supplied to the ink cartridge.

11. A maintenance method in an ink jet printer,  
20 wherein the ink jet printer includes a print head having a  
plurality of ink jet nozzles arranged in plural columns, an  
ink cartridge accommodating ink to be supplied to the print  
head, and an ink supply tube connecting the ink cartridge  
to the print head, the maintenance method comprising:  
25 covering the print head so as to shut communication of

ink that is located at a tip portion of each of the ink jet  
nozzles with ambient air;

producing pressurized air to be supplied to the ink  
cartridge for changing a state of the ink that is located  
5 at a tip portion of each of the ink jet nozzles; and

opening the print head so as to communicate the ink  
that is located at a tip portion of each of the ink jet  
nozzles with the ambient air in a state that the  
pressurized air is supplied to the ink cartridge.

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